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- (74) Agent: **PANOFF, Christopher, V.**; Steel Rives LLP, 900 S.W. Fifth Avenue, Suite 2600, Portland, OR 97204-1268 (US).
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- (71) Applicant (*for all designated States except US*): **SHOP ALL AMERICA.COM INC.** [US/US]; 14305 S.W. Milikan Way, Suite 100, Beaverton, OR 97005 (US).
- (84) Designated States (*regional*): **ARIPO** patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), **Eurasian** patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), **European** patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), **OAPI** patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- (71) Applicants and
- (72) Inventors: **SCHUBERT, Timothy, D.** [US/US]; 17850 N.W. Dogwood Court, Beaverton, OR 97006 (US). **GARCIA, Clemente, G.** [US/US]; 19536 S.W. Ruth Court, Beaverton, OR 97007 (US). **KARAKAS, Steve** [US/US]; 10129 S.W. Washington Street, Portland, OR 97225 (US).
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(54) Title: **TIER-DRIVEN REVERSE AUCTION SYSTEM AND METHOD FOR ELECTRONIC COMMERCE**

(57) Abstract: Methods and systems for selling goods (figure 1) and services involve the formation of a contractual alliance of distribution associates, promotion of sales of predefined goods offered by the distribution associates via a centralized web site, and a tier (302) driven reverse auction.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/41391**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : G06F 17/60; 3/14, 7/38

US CL : 705/1,26,27,37

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

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U.S. : 705/1,26,27,37

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

DIALOG

search terms: buy\$\$, sell\$\$, auction, internet, bid\$, database, B2B, B2C, location

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WILDSTROM. STEVEN. In search of the paperless contract Business Week, October 1994, page 14.	1-18
Y	US 5,835,896 A (Fisher et al) 10 November 1998, col 3.	1-18

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
A document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
E earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*Z* document member of the same patent family
O document referring to an oral disclosure, use, exhibition or other means	
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Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

RICH WEISBERGER

Telephone No. (703) 308-4408

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(30) Priority Data:
09/490,783 24 January 2000 (24.01.2000) **US**

(71) Applicant: **ORACLE CORPORATION [US/US]**; Oracle Corporation, 500 Oracle Parkway, M/S 50p7, Redwood Shores, CA 94065 (US).

(72) Inventor: **JOHNSON, Richard, C.**; 7542 Shadowhill Lane, Cupertino, CA 95014 (US).

(74) Agent: **YOUNG, Alan, W.**; Young Law Firm, P.C., 4370 Alpine Road, Suite 106, Portola Valley, CA 94028 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

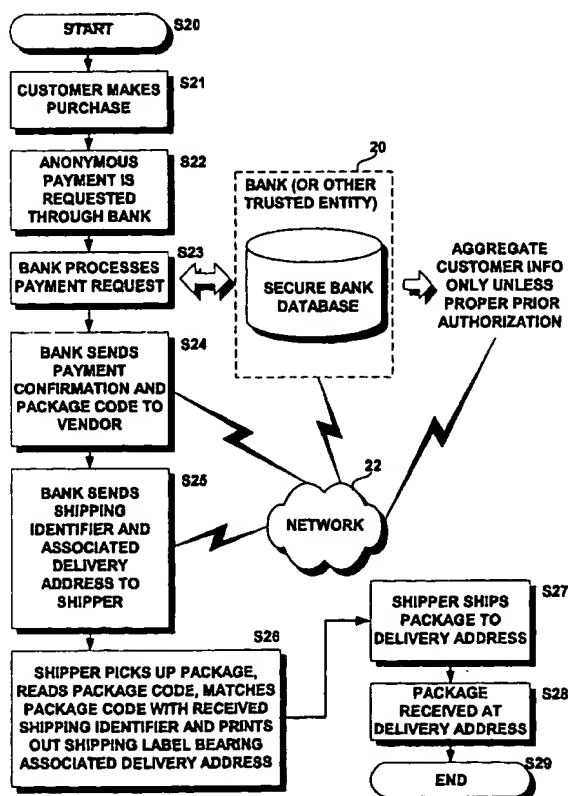
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **eDROPSHIP: METHODS AND SYSTEMS FOR ANONYMOUS eCOMMERCE SHIPMENT**



(57) Abstract: A method (Fig. 2) of enabling anonymous shipment of a package containing goods purchased by a customer from a vendor (S21) for delivery to an address unknown to the vendor includes steps of receiving a request for a package code for the package from the vendor, sending the package code to the vendor (S24), the package code being devoid of delivery address information and sending a shipping identifier and an associated address to the shipper (S25). The shipper, after picking up the package for shipment from the vendor, matches the package code sent to the vendor with the shipping identifier and identifies the associated address as the delivery address of the package. A shipping label may then be printed out and affixed to the package (S26).

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :G06F 17/00

US CL :705/400, 404, 406

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B. FIELDS SEARCHED

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U.S. : 705/26, 53, 60,74, 400, 404, 406

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PROQUEST AND DIALOG DATABASES

Search Terms: anonymous shipping, delivery, forwarding media, courier service, package identifier.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 200014648 A1 (BRENER et al.) 03 September 1999, col. 1, line 1.	1-28
Y, P	ANON2U.COM. Web Site, initial download April 10, 2000. http://www.anon2u.com/	1-17, 27, 28
A	US 5,812,670 A (MICALI) 22 September 1998.	1-28
A, P	US 6,055,504 A (CHOU et al.) 25 April 2000, col. 1, lines 60-67.	1-28
A, P	US 6,029,150 A (KRAVITZ) 22 February 2000, col. 7, lines 12-18.	1-28
Y	US 5,987,440 A (O'NEIL et al.) 16 November 1999, col. 2, lines 34-55.	1-28

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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Box PCT
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Facsimile No. (703) 305-3230

Authorized officer

TARIQ HAFIZ

Telephone No. 603 308-7808

James R. Matthews

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/33143

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,898,777 A (TYCKSEN, Jr. et al.) 27 April 1999, col. 4, lines 41-55.	18-26
Y	SHEILS, MERRY. "More Than Simply Cyber Cents," Chief Executive. 01 December 1995, pp. 1-2.	18-26
Y	DALY, JAMES J. "The Money Changer," Credit Card Management. 01 June 1995, pp. 1-4.	18-26
A, P	"WebAssured.com: WebAssured "the dot.confidence company" and Layeway.com Form Strategic Partnership; Pact Aligns Internet's Most Comprehensive Online Merchant Certification Program with Premiere Online Alternative Payment Solutions Provider," M2 Presswire. 18 October 2000, pp. 1-3.	1-28
Y	ROSEN, MICHELE. "Cash for Cyberspace," Midrange Systems. 12 April 1996, p. 1.	18-26

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09/413,086 6 October 1999 (06.10.1999) **US**

(71) Applicant: **HONDA OF AMERICA MFG., INC.**
[US/US]; 24000 Honda Parkway, Marysville, OH
43040-9251 (US).

(72) Inventors: **MEIER, Matthew, J.**; 24000 Honda Park-
way, Marysville, OH 43040-9251 (US). **CAMPISANO,**

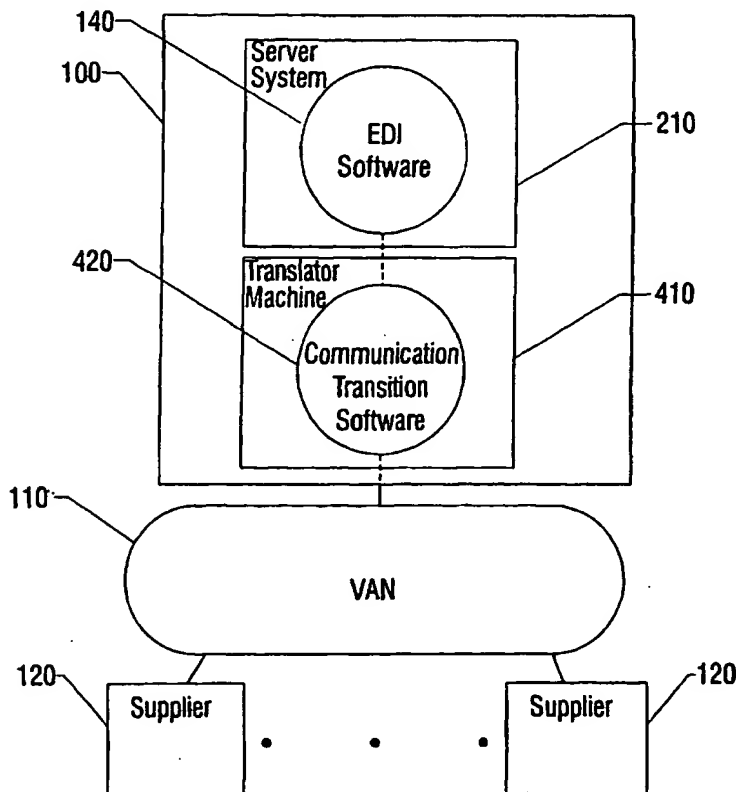
Stephen, F.; 24000 Honda Parkway, Marysville, OH
43040-9251 (US). **DEAVES, Timothy**; 24000 Honda
Parkway, Marysville, OH 43040-9251 (US). **GIN-**
GERICH, Steven, A.; 24000 Honda Parkway, Marysville,
OH 43040-9251 (US). **OKE, Kedar, R.**; 24000 Honda
Parkway, Marysville, OH 43040-9251 (US).

(74) Agent: **DURKEE, William, D.**; Howrey Simon Arnold &
White, LLP, 750 Bering Drive, Houston, TX 77057-2198
(US).

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AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ,
DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,
HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,
TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

[Continued on next page]

(54) Title: **TRACKING EDI DOCUMENTS WITH INFORMATION FROM MULTIPLE SOURCES**



(57) Abstract: A method executed in a server system (210) is provided for transmitting one or more outbound EDI documents (120) in an EDI network (110), each outbound EDI document (120) containing a respective unique document identifier. The method includes the generation of formatted files containing a document identifier and a translator machine (410) capable of translating (420) the formatted files into EDI documents. Another method translates (420) inbound EDI documents by generating formatted files containing a document identifier comprising values extracted from each inbound EDI document.

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INTERNATIONAL SEARCH REPORT

 International application No.
 PCT/US00/27089

A. CLASSIFICATION OF SUBJECT MATTER IPC(7) : G06F 17/30; G06F 15/00. US CL : 707/4, 100, 503, 504; 705/7, 10, 28, 29, 30. According to International Patent Classification (IPC) or to both national classification and IPC														
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) U.S. : 707/4, 100, 503, 504; 705/7, 10, 28, 29, 30. Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Please See Extra Sheet.														
C. DOCUMENTS CONSIDERED TO BE RELEVANT														
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.												
Y	US 5,893,076 A (HAFNER et al) 06 April 1999, col. 1, lines 43-65, col. 2, lines 5-10 and 29-61, col. 3, lines 32-67, col. 4, lines 1-16 and lines 43-67, col. 5, lines 1-67, col. 6, lines 1-67, col. 7, lines 1-8, col. 8, lines 49-63, and col. 9, lines 58-67.	1-9												
Y	US 5,909,570 A (WEBBER) 01 June 1999, col. 1, lines 19-54, col. 2, lines 45-67, col. 3, lines 1-13, col. 4, lines 3-11, lines 20-50, and 56-67, col. 6, lines 41-67, col. 7, lines 1-26, col. 8, lines 39-67, col. 9, lines 1-37, col. 10, lines 9-67, col. 11, lines 1-67, col. 12, lines 1-21 and lines 65-67, col. 13, lines 1-9 and lines 25-30, col. 14, lines 52-64, and col. 15, lines 6-16.	1-9												
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.														
<table border="0"> <tr> <td>* Special categories of cited documents:</td> <td>*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td>*A* document defining the general state of the art which is not considered to be of particular relevance</td> <td>*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td>*E* earlier document published on or after the international filing date</td> <td>*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>*Z* document member of the same patent family</td> </tr> <tr> <td>*O* document referring to an oral disclosure, use, exhibition or other means</td> <td></td> </tr> <tr> <td>*P* document published prior to the international filing date but later than the priority date claimed</td> <td></td> </tr> </table>			* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	*A* document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	*E* earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*Z* document member of the same patent family	*O* document referring to an oral disclosure, use, exhibition or other means		*P* document published prior to the international filing date but later than the priority date claimed	
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P document published prior to the international filing date but later than the priority date claimed														
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Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230		Authorized officer ELLA COLBERT <i>Peggy Hamod</i> Telephone No. (703) 308-7064												

INTERNATIONAL SEARCH REPORT

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,557,780 (EDWARDS et al) 17 September 1996, col. 1, lines 54-67, col. 2, lines 32-39, col. 3, lines 39-57 and lines 66-67, col. 4, lines 1-16 and lines 41-67, col. 5, lines 1-11, lines 45-53, and lines 66-67, col. 6, lines 1-12 and lines 48-67, col. 7, lines 1-7, col. 9, lines 38-54, and col. 11, lines 32-50.	1-9

TRACKING EDI DOCUMENTS WITH INFORMATION FROM MULTIPLE SOURCES

BACKGROUND OF THE INVENTION

5 The present invention relates generally to the field of inventory management. More particularly, it concerns a method for tracking EDI (Electronic Data Interchange) documents with information from multiple sources.

 EDI is generally concerned with facilitating communication between businesses and trading partners. Generally speaking, business transactions between a buyer and a supplier are
10 traditionally initiated by the buyer generating a paper purchase order for goods in view of its anticipated needs. The purchase order contains the information necessary for the supplier to complete the requested transaction, such as the identity of the buyer, the location the supplies are needed, and the date the supplies are wanted.

 The purchase order is mailed, sent via facsimile, etc., from the buyer to the supplier.
15 When the supplier receives the purchase order, the supplier enters the purchase order into its system manually to determine the availability of the ordered supplies.

 If the supplies are available the order is entered in the supplier's shipping system. The shipping system generates a paper invoice that is sent back to the buyer. The buyer finds out if his purchase order has been accepted and approximately when the order will arrive when the
20 paper invoice arrives. It could take several days before the paper invoice is actually received by the buyer. If the invoice is sent via facsimile, the invoice could arrive within a few minutes of it being sent. In either case it is necessary to manually enter the shipping information into the buyer's system. After the invoice is sent, the supplier initiates its shipping procedures so that the supplies can be transported to the buyer.

25 The traditional paper based process tends to be inefficient. Delays and backlogs in the mail system can extend the duration of the process to several days or even weeks. Furthermore, manual entry of information received on paper is prone to mistakes.

 The demand for faster and more efficient business transactions has led to the development of EDI. EDI has been used to streamline the ordering and purchasing process
30 between a supplier and a buyer. It may be appreciated that EDI is useful to facilitate all types of business transactions where data is exchanged.

 Generally, EDI consists of the electronic exchange of information coded into predefined units, referred to as "documents," between two or more business partners. EDI documents are

defined to contain all the information that is necessary to exchange to conduct specific business transactions.

EDI is also concerned with the establishment of an open environment where an entire community of business partners can communicate. To foster seamless communication EDI documents have been standardized. The American National Standards Institute (ANSI) Accredited Standards Committee X.12 developed the Electronic Data Interchange ASC X.12 Standards, incorporated herein by reference as general background information, setting common standards for these documents and data elements that form part of each type of document.

FIG. 1 shows a typical EDI network including a buyer system 100, a value added network (VAN) 110, and multiple supplier systems 120. The buyer system 100 includes computer processing hardware 150 and EDI software 140. The Baan Company, for example, provides commercial system software solutions that manage information contained on EDI documents provided between buyers and suppliers (referred to herein as the "EDI software").

The VAN 110 is a network generally provided by a third party to enable EDI document communications between the buyer system 100 and the supplier system 120. The VAN 110 provides an open environment where businesses can exchange EDI documents with the entire trading community in the EDI network. As will be appreciated by one skilled in the art, one purpose of the VAN 100 is to serve as an electronic mailbox to link the buyer system 100 and a supplier system 120. The buyer system 100 is connected to the VAN 112 via a communications link 130. The communications link 130 typically consists of leased lines from a common carrier using Transmission Control Protocol/Internet Protocol (TCP/IP) for connectivity. As will be appreciated by one skilled in the art, other types of communication links may be utilized. Likewise the supplier system is connected to the VAN via a communications link 130.

Typical use of the EDI network includes, for example, the buyer system 100 sending a Purchase Order document (sometimes known as an "850" document) to the VAN 110. The 850 document may be addressed to one or more suppliers and is coded according to X.12 standards to include appropriate information identifying the supplier and the supplies that are ordered. The 850 document can be sent to a supplier on a regular basis or on a need-based schedule. An 850 document can also be sent on a different schedule based on the specific supplier addressed.

The supplier system 120 periodically checks for its EDI documents in the VAN 110. The supplier system 120 verifies that it can process the 850 document and responds with an

defined to contain all the information that is necessary to exchange to conduct specific business transactions.

EDI is also concerned with the establishment of an open environment where an entire community of business partners can communicate. To foster seamless communication EDI documents have been standardized. The American National Standards Institute (ANSI) Accredited Standards Committee X.12 developed the Electronic Data Interchange ASC X.12 Standards, incorporated herein by reference as general background information, setting common standards for these documents and data elements that form part of each type of document.

FIG. 1 shows a typical EDI network including a buyer system 100, a value added network (VAN) 110, and multiple supplier systems 120. The buyer system 100 includes computer processing hardware 150 and EDI software 140. The Baan Company, for example, provides commercial system software solutions that manage information contained on EDI documents provided between buyers and suppliers (referred to herein as the "EDI software").

The VAN 110 is a network generally provided by a third party to enable EDI document communications between the buyer system 100 and the supplier system 120. The VAN 110 provides an open environment where businesses can exchange EDI documents with the entire trading community in the EDI network. As will be appreciated by one skilled in the art, one purpose of the VAN 100 is to serve as an electronic mailbox to link the buyer system 100 and a supplier system 120. The buyer system 100 is connected to the VAN 112 via a communications link 130. The communications link 130 typically consists of leased lines from a common carrier using Transmission Control Protocol/Internet Protocol (TCP/IP) for connectivity. As will be appreciated by one skilled in the art, other types of communication links may be utilized. Likewise the supplier system is connected to the VAN via a communications link 130.

Typical use of the EDI network includes, for example, the buyer system 100 sending a Purchase Order document (sometimes known as an "850" document) to the VAN 110. The 850 document may be addressed to one or more suppliers and is coded according to X.12 standards to include appropriate information identifying the supplier and the supplies that are ordered. The 850 document can be sent to a supplier on a regular basis or on a need-based schedule. An 850 document can also be sent on a different schedule based on the specific supplier addressed.

The supplier system 120 periodically checks for its EDI documents in the VAN 110. The supplier system 120 verifies that it can process the 850 document and responds with an

Advanced Shipment Notice document (sometimes known as an “856” document) to the VAN 110 addressed to the buyer system 100.

The buyer system 100 periodically checks with the VAN 110 for its documents and will therefore retrieve the 856 document. The buyer system’s 100 EDI software 140 validates the
5 information in the 856 document and if appropriate returns an Application Advice document (sometimes know as an “824” document).

In a manufacturing environment a buyer commonly needs an efficient system to meet internal requirements. These internal requirements can include, e.g., a rigorous timing schedule between the sending and receiving of EDI documents. For example, to speed the delivery of
10 needed supplies the buyer may set an internal requirement of only a few minutes for responding to 856 documents with an 824 document. Although in this example 824 and 856 documents are high priority documents, other documents that are periodically exchanged have a lower priority and do not require such a quick response time. For example, a Purchase Schedule document (sometimes known as an “830” document) may go out only once a week and thus there is no
15 urgent need for an immediate delivery. Processing each of the EDI documents as they become available becomes inefficient because messages with a lower priority will at times be processed ahead of messages with a higher priority.

The business community that a buyer may need to exchange EDI documents with could be extensive. As shown in FIG. 1, the buyer may be purchasing goods from a plurality of
20 suppliers 120. However, the buyer may also need to exchange EDI documents with businesses such as financial institutions, freight services, warehouses, etc. The buyer may also have a plurality internal of departments and organizations that originate purchases, sometimes known as “logistical companies.” These logistical companies are interested in independently finding the status of a specific purchase order. In order to manage the EDI network the buyer needs to be
25 fully aware of the status of the EDI documents originated by its logistical companies and received from its suppliers and other business partners.

Thus, there exists a need to track EDI documents that is uniform to the buyer, its logistical companies, and to other business partners such as suppliers. A need further exists for a tracking method that displays the status of each EDI business transaction to determine its status.

SUMMARY OF THE INVENTION

One aspect of the present invention relates to a method, executed by a server system in an EDI network, of transmitting one or more EDI documents, referred to as outbound EDI documents. Each outbound EDI document contains a respective unique document identifier.

- 5 The method comprises providing a translator machine that is programmed to translate files structured in accordance with a specified format, referred to as formatted files, into corresponding outbound EDI documents. The method also provides instructions to the translator machine for embedding the respective document identifiers of formatted files into corresponding transmission identifier fields of the respective corresponding outbound EDI documents. The
- 10 method also generates the one or more formatted files containing information to be included in the one or more outbound EDI documents to be transmitted, including respective document identifiers and sending the one or more formatted files to the translator machine.

- In another aspect of the invention the document identifiers of the outbound EDI documents are used to track the status of the outbound EDI documents. The outbound EDI
- 15 documents can be displayed to track their respective status.

- Yet another aspect of the present invention relates to a method, executed by a translator machine in an EDI network, of translating inbound EDI documents into files structured in accordance with a specified format, referred to as formatted files. The method generates one or more inbound formatted files containing information from one or more inbound EDI documents.
- 20 For each of the one or more inbound EDI documents, a respective document identifier is also generated. The one or more formatted files are then sent to a server system. The document identifier can be used to track the status of the inbound EDI documents including the displaying of the status.

25 BRIEF DESCRIPTION OF THE DRAWINGS

The following drawings form part of the present specification and are included to further demonstrate certain aspects of the present invention. The invention may be better understood by reference to one or more of these drawings in combination with the detailed description of specific embodiments presented herein.

- 30 FIG. 1 is a block diagram of an EDI network.

FIG. 2 is a high-level block diagram of an exemplary embodiment of a server system in an EDI network.

FIG. 3 depicts an exemplary embodiment of a document identifier.

FIG. 4 is a block diagram of an embodiment of the present invention.

DESCRIPTION OF ILLUSTRATIVE EMBODIMENT

5 For purposes of illustration, a specific embodiment is described below. In the interest of clarity not all features of actual implementations are described in this specification. It should be appreciated by those of skill in the art that the techniques disclosed in the examples which follow represent techniques discovered by the inventors to function well in the practice of the invention, and thus can be considered to constitute preferred modes for its practice. However, those of skill
10 in the art should, in light of the present disclosure, appreciate that many changes can be made in the specific embodiments which are disclosed and still obtain a like or similar result without departing from the spirit and scope of the invention. Those of skill in the art will also appreciate that in the development of an actual implementation, as in any project, numerous engineering and programming decisions must be made to achieve the developers' specific goals.
15 Development of such an implementation, although perhaps complex and time-consuming, would nevertheless be a routine undertaking for those of ordinary skill in the field of EDI system design and programming.

The illustrative embodiment includes a method, executed by a server system in an EDI network, of transmitting one or more EDI documents. Referring to FIG. 2, a server system **210**
20 can comprise one or more actual machines. One typical implementation of a server system **210** involves an application server **220**, a database server **230**, and an EDI server **240**. Each server may comprise any suitable hardware and software platform, e.g., a personal computer, a workstation, a mainframe computer, combinations thereof, etc. The servers may be interconnected by via network links **250** or any other suitable interserver connection platform.

25 The server system **210** runs the EDI software **140**. In one illustrative embodiment, shown in FIG. 4, the EDI software **140** is based on the Baan Company Software, commercially known as BaaN™ IV, modified to perform the methods of the present invention. The EDI software **140** utilizes separate communications/translation software **420** to interface with the VAN **110**. In one illustrative embodiment, the communications/translation software **420** is based on modifications
30 to Sterling Commerce's Gentran:Server product (referred to herein as "communications/translation software").

The communications/translation software **420** provides the File Transfer Protocol (FTP) communication between the EDI software **140** and the VAN **110**. The communications/translation software **420** also provides translation services coding EDI documents sent to the VAN **110** according to the X.12 standard and decoding the X.12 EDI documents taken from the VAN **110** for the EDI software **140**.

In one exemplary embodiment EDI documents are referred to as “outbound” EDI documents when the EDI documents are generated by the buyer system **100** and are addressed to a supplier system **120** as shown in FIG 4. One skilled in the art with the benefit of this disclosure will appreciate that the reference “outbound EDI document” could refer to an EDI document originating from a buyer, supplier, or other entity in an EDI network depending on the perspective of the embodiment being discussed.

Each outbound EDI document originating from the buyer system **100** is assumed to contain a document identifier. The document identifier is used to uniquely identify each outbound EDI document throughout the EDI network and the buyer’s logistical companies. FIG. 3 shows a specific embodiment for the document identifier **300**. Because the document identifier **300** is embedded in a transmission identifier field of an outbound EDI document, it remains with the EDI document as the document is transmitted along the supply chain of the EDI network. Accordingly, the document identifier **300** can be used for tracking purposes.

In the illustrative embodiment shown in FIG. 3, the document identifier is made up of nine characters labeled 0-8. The document identifier includes two letters in character spaces 0-1. Space 0 **310** specifies the logistical company that originates the EDI document. Space 1 **320** specifies the type of EDI document.

The document identifier **300** also includes a seven digit number in spaces 2-8 **330** specifying a sequential number for outbound EDI documents. For example, the document identifier TF1234567 can represent the 1,234,567th document identifier (assuming that the sequential numbers are generated beginning at 0000001) for the document type designated as “F,” and the logistical company designated as “T.” A logistical company in the present embodiment refers to an internal division of the buyer, such as a particular manufacturing site that is a part of the buyer. For each two-letter combination for characters 0-1, a sequential number is kept in character locations 2-8. However, it will be appreciated that the form of the document identifier is not relevant to the invention.

As shown in FIG. 4, the method comprises providing a translator machine 410 that is programmed to translate files structured in accordance with a specified format, referred to as formatted files, into corresponding outbound EDI documents. Translate, for purposes of this specification, refers to receiving a file in a specified format and generating a corresponding file in a different format. The formatted files that are translated are also known colloquially as "flat files."

The translator machine 410 may be a general-purpose computer running the communications/translation software 420. According to one embodiment the translator machine 420 is a Hewlett-Packard® HP 9000 type of computer. It will be appreciated by one skilled in the art that the translator machine 410 may be a separate physical machine from the server system 210, or it may be the same machine running both the communications/translation software 420 and the server-system software.

The translator machine 410 is provided with instructions for embedding the respective document identifiers of formatted files into corresponding transmission identifier fields of the respective corresponding outbound EDI documents. In the ANSI X12 standard, the transmission identifier field is referred to as the ST02 field. The instructions to the translator machine 410 may be provided in the form of a map that shows how a specified portion of a formatted file is mapped into a specified portion of a corresponding X.12 EDI document.

The EDI software 140 running on the server system 210 creates one or more formatted files for each EDI document that a logistical company in the buyer system 100 wants to send. The formatted files contain information to be included in the one or more outbound EDI documents to be transmitted, including respective document identifiers. Typically, the information to be included in different EDI documents will be included in a single outbound formatted file. Alternatively, one formatted file per EDI document may be used or the information for one or more EDI documents can be split among multiple formatted files. Thus, to track the transactions among a buyer and a supplier the respective document identifiers of one or more outbound EDI documents are utilized.

A significant advantage of the method disclosed is that it permits information from a variety of different databases to be collected, collated, and displayed in any convenient format, because the document identifier 300 is passed through from the logistical companies in the buyer system 100 through to the supply chain in the EDI network. This is the case even though, on outbound transmissions from the server system 210, the server system 210 would not otherwise

know the value of the transmission identifier in the actual EDI document. This is because the actual coding of the EDI document into the X.12 format and creation of the transmission identifier is done by the communications/translation software **420** running in the translator machine **410** and not by the server system **210**. However, according to the present invention the document identifier **300** is created by the EDI software **140** and is converted into the transmission identifier by communications/translation software **420**. Thus, the document identifier **300** for an EDI document originated by the server system **210** can be determined by simply checking the transmission identifier.

In order for the tracking mechanism to be complete, EDI documents taken from the VAN **110** and addressed to the buyer system **100** should also be uniquely identified and displayed. In the embodiment here described, EDI documents addressed to the buyer are referred to as "inbound" EDI documents. Therefore, according to an illustrative embodiment of the present invention, as shown in FIG. 4, a method is executed by a translator machine **410** in an EDI network, of translating inbound EDI documents.

The EDI documents are translated by the communications/translation software **420** running in the translator machine **410** into one or more files structured in accordance with a specified format, again referred to as formatted files. The formatted files are generated and sent to the server system **210**. The inbound formatted files contain information from one or more inbound EDI messages. The communications/translation software **420** creates an inbound document identifier for incoming documents based on information received in the inbound EDI document. According to one embodiment the following information is extracted from an incoming X.12 EDI document and concatenated to generate the inbound document identifier: (1) logistical company identifier, identifying an internal entity (e.g., a manufacturing site) of the buyer; (2) the ISA Sender field, identifying the address of the sender; (3) the transaction set identification field (defined as ST01 in the X.12 standard); (4) the transmission identifier (defined as ST02 in the X.12 standard); (5) the ISA date, indicating the date the EDI document was sent from the supplier; and (6) the ISA time, indicating the time the EDI document was sent from the supplier.

Similar to the outbound side, the inbound side EDI document processing has a significant advantage in that it permits the information that is collected from an EDI document to be passed through from a supplier or other business partner to the buyer, and to the logistical companies within the buyer. Thus, the EDI document can be uniquely identified along with a variety of

different information from databases that is collected, collated, and then displayed in any convenient format, because the document identifier is passed through.

In order to keep track of the EDI documents it is necessary to maintain a data store containing the respective document identifiers whose values are contained in each transmission identifier field for each respective one or more outbound EDI documents. Also, for each of a plurality of inbound EDI documents, a data store is maintained with the respective inbound document identifier, comprising a concatenation of a specified set of field values in the respective one or more inbound EDI documents. To display the status of the outbound and/or inbound EDI documents the display may be organized by linking information about, or from, related EDI documents so that such information is displayed in a convenient format that shows the relationship(s) between the related documents as desired.

The method described in the illustrative embodiments may be implemented at least in part, by one or more computer programs to be executed by one or more general-purpose processors. The programming may be accomplished through the use of a program storage system comprising one or more program storage devices readable by the processor(s) that encodes software, e.g., a program of instructions executable by the processor(s) for performing the operations described above. Any such program storage device may take the form of, e.g., read-only memory (ROM) installed on a circuit board containing the processor, as well as other forms of the kind well known in the art or subsequently developed. The program of instructions may be "object code," i.e., in binary form that is executable more-or-less directly by the computer; in "source code" that requires compilation or interpretation before execution; or in some intermediate form such as partially compiled code. The precise forms of the program storage device(s) and of the encoding of instructions are immaterial here.

While methods of this invention have been described in terms of illustrative embodiments, it will be apparent to those of skill in the art that variations may be applied to the methods and in the steps or in the sequence of steps of the methods described herein without departing from the concept, spirit and scope of the invention. All such similar substitutes and modifications apparent to those skilled in the art are deemed to be within the spirit, scope and concept of the invention as defined by the appended claims.

CLAIMS:

1. A method, executed by a server system in an EDI network, of transmitting one or more EDI documents, referred to as outbound EDI documents, each containing a respective unique
5 document identifier, comprising:
 - (a) providing a translator machine that is programmed to translate files structured in accordance with a specified format, referred to as formatted files, into corresponding outbound EDI documents;
 - (b) providing instructions to the translator machine for embedding the respective
10 document identifiers of formatted files into corresponding transmission identifier fields of the respective corresponding outbound EDI documents;
 - (c) generating one or more formatted files containing information to be included in the one or more outbound EDI documents to be transmitted, including respective document identifiers,
 - (d) sending the one or more formatted files to the translator machine.
- 15 2. The method of claim 1, further comprising:
 - (e) using the respective document identifiers of one or more outbound EDI documents in tracking the status of said one or more outbound EDI documents; and
 - (f) displaying the status of at least some of said one or more outbound EDI documents.
- 20 3. A method, executed by a translator machine in an EDI network, of translating inbound EDI documents into files structured in accordance with a specified format, referred to as formatted files, and transmitting said formatted files to a server system, said method comprising:
 - (a) generating one or more inbound formatted files containing (1) information from one
25 or more inbound EDI documents, and (2) for each said one or more inbound EDI documents, a respective document identifier; and
 - (b) sending the one or more formatted files to the server system.
- 30 4. The method of claim 3, wherein the respective document identifier for each of the one or more inbound EDI documents comprises a concatenation of a specified set of field values in the respective one or more inbound EDI documents.

5. The method of claim 4, wherein the specified set of field values comprise 1) a logistical company number, 2) a sender address value, 3) a transaction set ID value, 4) a transmission identifier value, 5) a date-created value, and 6) a time-created value.
- 5 6. The method of claim 5, wherein the one or more inbound EDI documents are structured in accordance with the ANSI X.12 format.
7. The method of claim 3, further comprising:
- (c) using the respective document identifiers of one or more inbound EDI documents in
10 tracking the status of said one or more inbound EDI documents, and
- (d) displaying the status of at least some of said one or more inbound EDI documents.
8. A machine-executed method of tracking the status of one or more EDI documents, comprising:
- 15 (a) providing a data store containing:
- (1) for each of one or more outbound EDI documents, a respective document identifier whose value is contained in a transmission identifier field for the respective outbound EDI document, and
- (2) for each of a plurality of inbound EDI documents, a respective document
20 identifier comprising a concatenation of a specified set of field values in the respective one or more inbound EDI documents;
- (b) using the respective document identifiers in the data store in tracking the status of one or more of the inbound EDI documents and outbound EDI documents, and
- (c) displaying the status of at least some of said one or more outbound EDI documents
25 and inbound EDI documents.
9. A program storage system encoding a machine readable copy of instructions for performing a method in accordance with a specified one of claims 1-8.

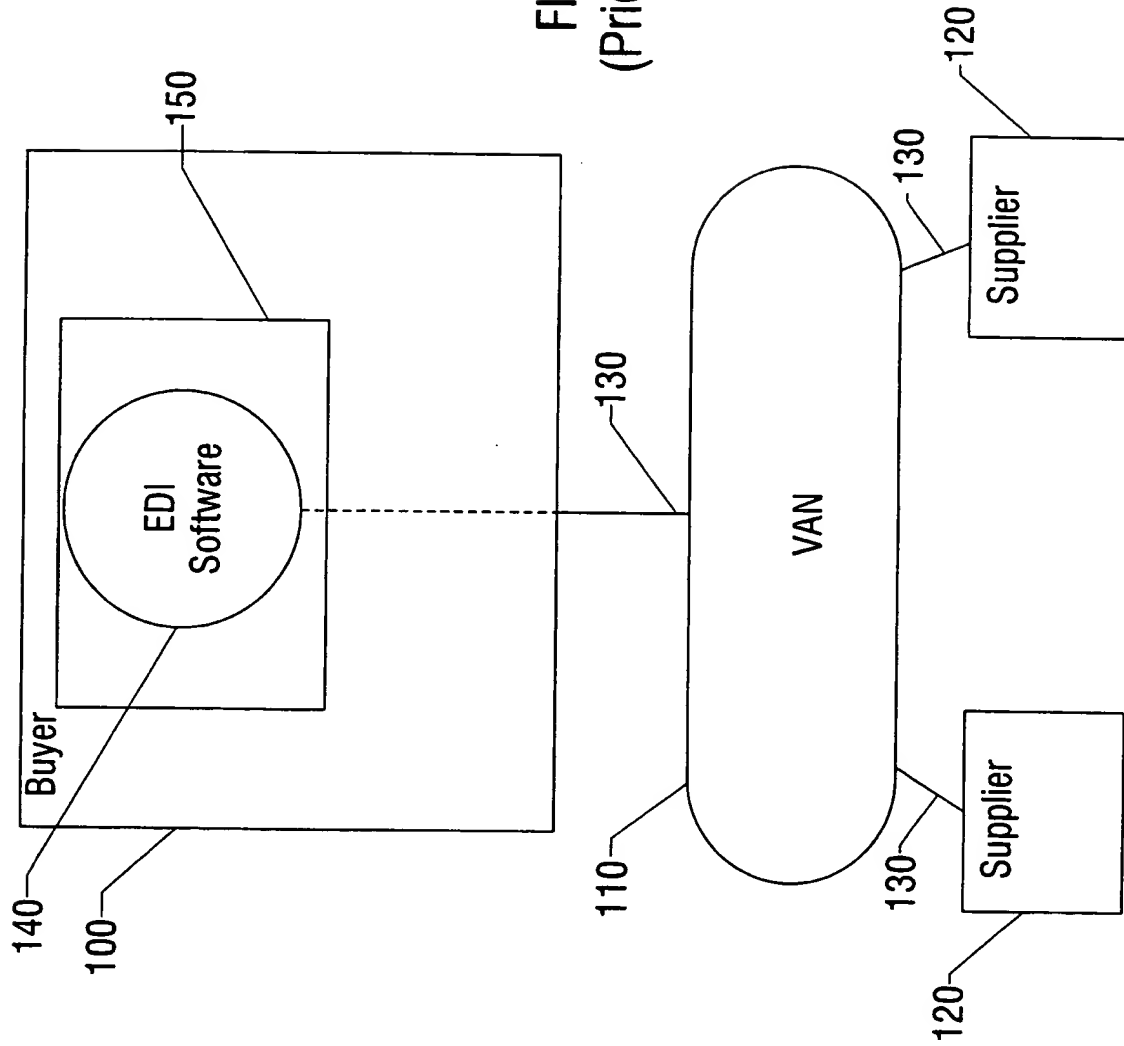


FIG. 1
(Prior Art)

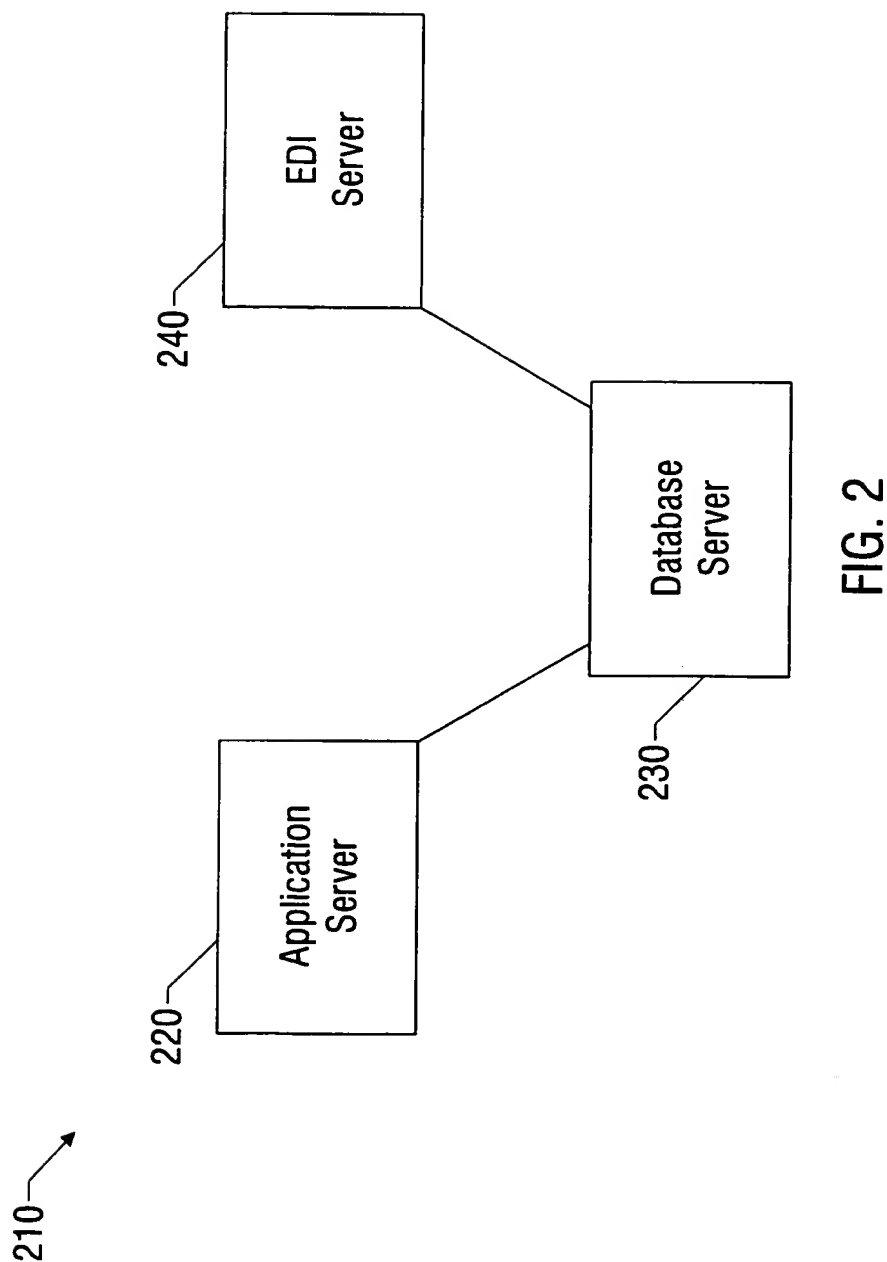


FIG. 2

300 →

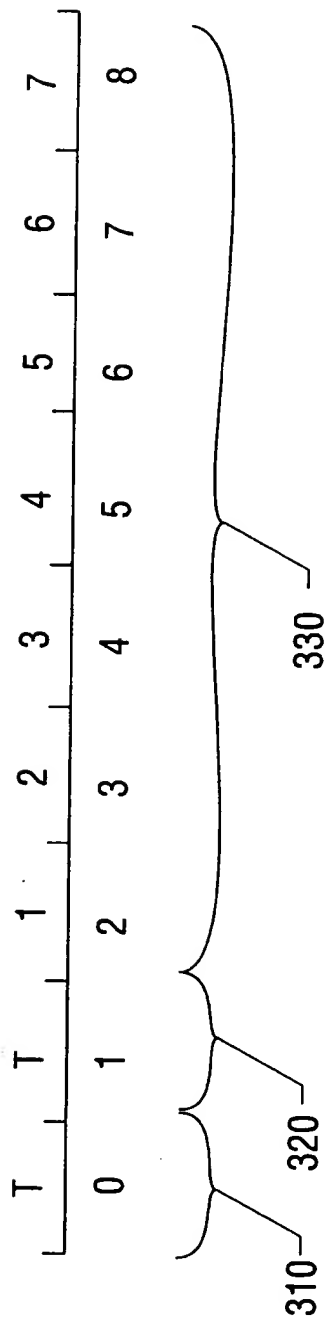


FIG. 3

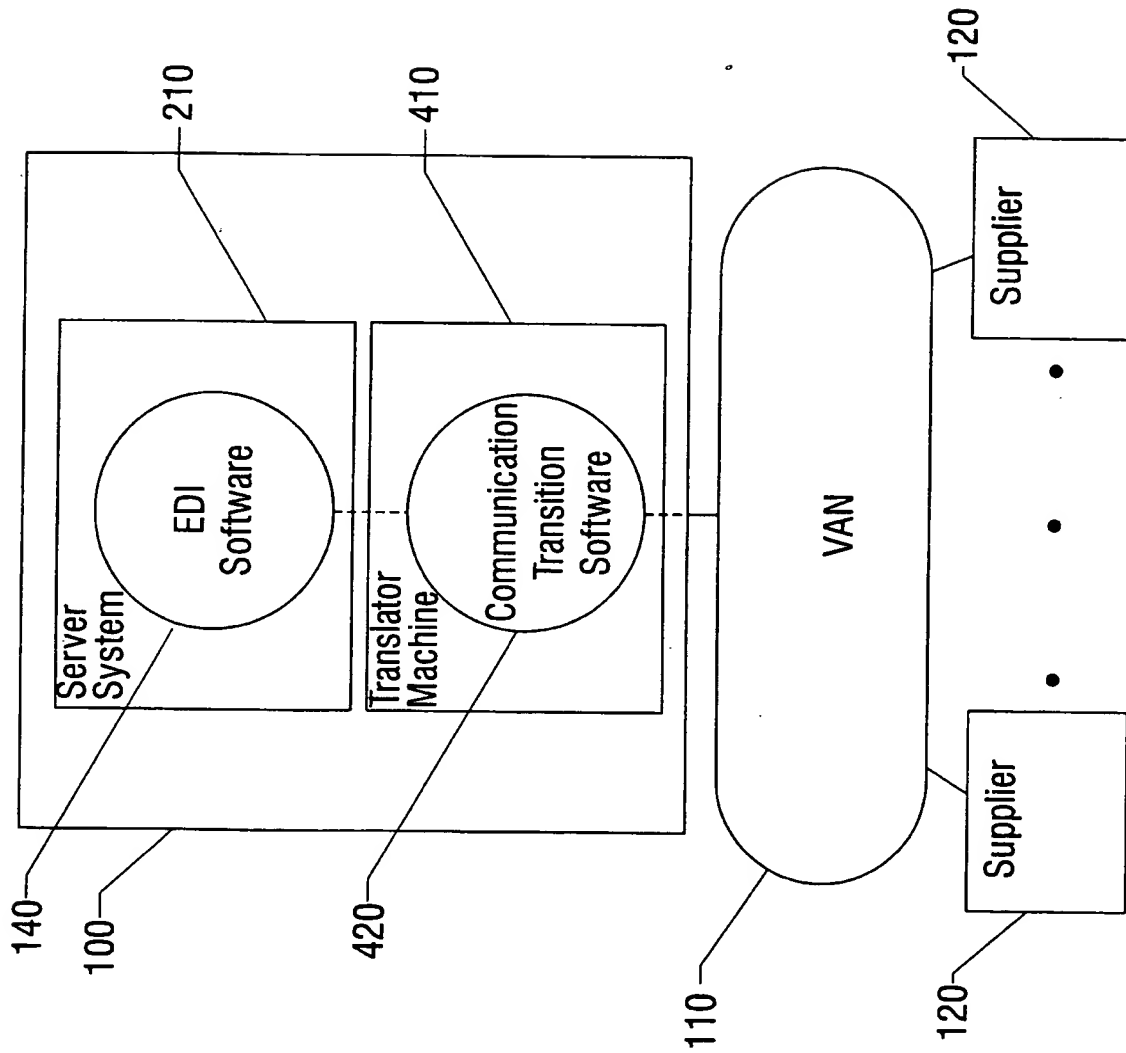


FIG. 4